

Clean Air Through Advanced Building Codes

EPA Air Innovations Conference
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Dub Taylor, Director
Texas State Energy Conservation Office



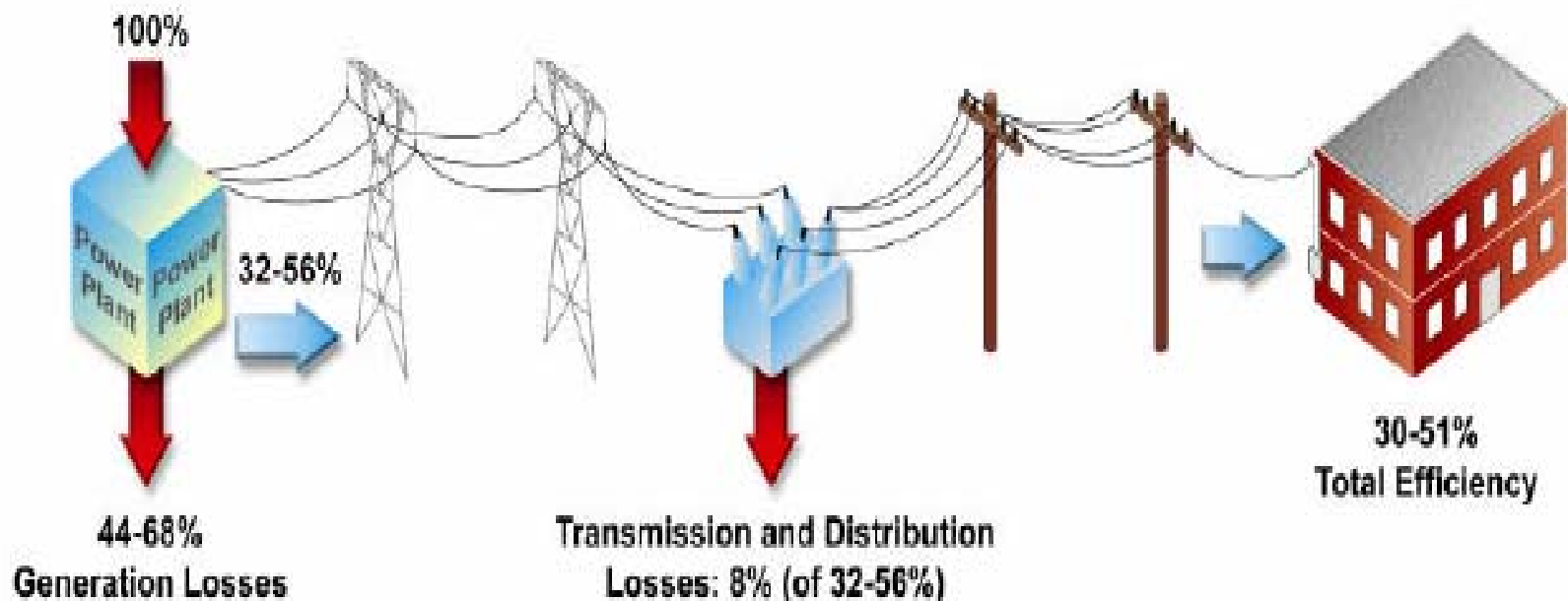
The Texas Energy Picture

- ❖ Oil & Gas production peaked in 1972
- ❖ Texas became a net energy importer in 1993
- ❖ 5th largest energy user in the world
- ❖ Texas accounts for 12% of U.S. energy consumption – why?
 - ❖ 60% of US petrochemical production
 - ❖ 25% of US refining capacity
 - ❖ 19 million vehicles
 - ❖ 22 million population

Electricity in Texas

- ❖ Annual growth in electrical use averaged +2.5% over last 10 years
- ❖ 350K GWh annually
- ❖ 70K MW peak demand (August)
- ❖ Electric generating fuel
 - ❖ Natural gas 44%
 - ❖ Coal 40%
 - ❖ Nuclear 14%
 - ❖ Renewable 2%

How Electric Consumption Impacts Emissions (3-1 Rule)



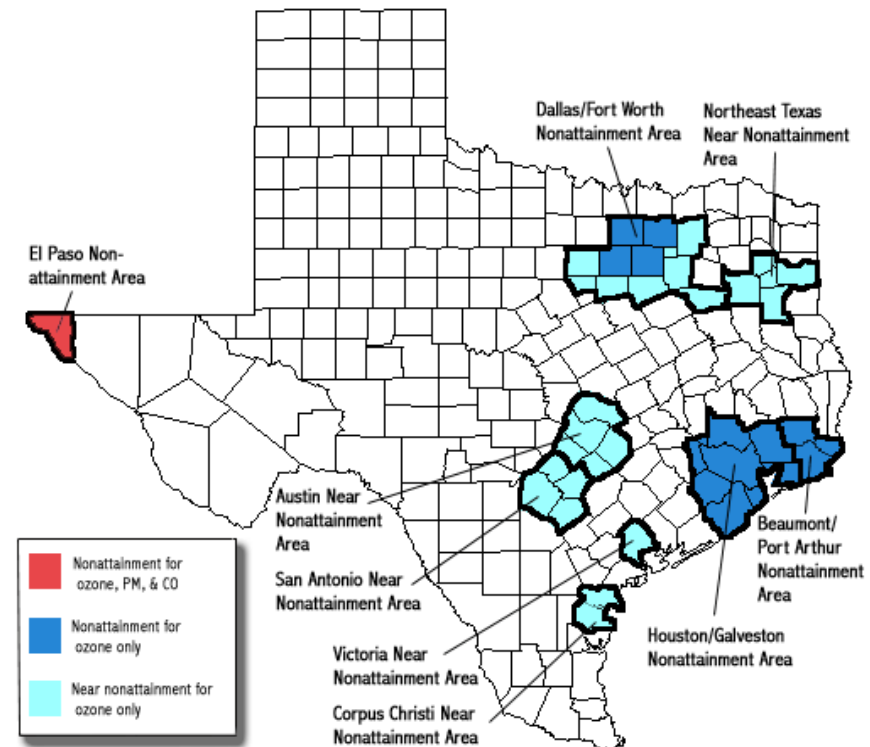
Texas Air Quality

Ozone Non-Attainment

- ❖ Dallas/Fort Worth
- ❖ Houston/Galveston
- ❖ Beaumont/Port Arthur
- ❖ El Paso

Ozone Near Non-Attainment

- ❖ Austin/San Antonio
- ❖ Corpus Christi/Victoria
- ❖ Tyler/Longview/Marshall



Texas Emissions Reduction Plan

SB 5, 77th Texas Legislature(2001)

Mobile

- ❖ Emissions Reduction Incentive Grants
- ❖ New Technology Research and Development

Building Energy Efficiency

- ❖ **Building Energy Performance Standards**
- ❖ Local Government Energy Efficiency

TERP - Building Energy Performance Standards

Legislative Findings/Policy Purpose

- ❖ Reduce air pollutant emissions affecting health
- ❖ Moderate future peak electric power demand, assuring reliability
- ❖ Controlling energy costs for residents and business in the state

TERP - Texas Building Energy Performance Standards

Texas Energy Code

- ❖ Residential(single-family)
 - ❖ Energy Efficiency chapter of the International Residential Code (IRC 2001)
- ❖ Multi-family/Commercial/Industrial
 - ❖ International Energy Conservation Code (IECC 2001)

SIP-Creditable EE/RE



- ❖ **Building energy codes**
- ❖ Local solar photo-voltaic (PV) installations
- ❖ Local solar thermal installations
- ❖ Zero emission distributed generation (Fuel cells)
- ❖ Wind power purchases
- ❖ Water/wastewater energy-related improvements
- ❖ Street lighting and traffic signal lighting improvements
- ❖ Energy conservation building retrofits
- ❖ Appliance upgrades and cool roofs
- ❖ **LEED-certified or comparable new buildings**
- ❖ Building commissioning projects

Code Training and Support

- ❖ DOE
- ❖ EPA
- ❖ Texas A&M, ESL
- ❖ Texas State Energy Conservation Office
- ❖ Texas Commission on Environmental Quality
- ❖ North Central Texas Council of Governments*
- ❖ Texas Association of Builders*
- ❖ Greater Houston Builders Association*
- ❖ Greater Dallas Home Builders Association*
- ❖ BCAP
- ❖ Alliance to Save Energy

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TEXAS

STATE ENERGY CONSERVATION OFFICE

VIDEO TRAINING SERIES

WELCOME

Homebuilders and Building Professionals face a tremendously changing environment today. You are faced with the constant need to update your knowledge of that environment in the light of changing materials, building codes, liability and customer expectations.

This video, sponsored by the Texas State Energy Conservation Office (SECO) of the Comptroller of Public Accounts and funded by the U.S. Department of Energy, will provide you with a wealth of information on two of the most pressing issues for homebuilders today; the new TX Residential Energy Code and mold and water intrusion issues.

Part 1 of the Video will introduce you to the Texas Energy Code, its requirements, and show you how to easily comply with those requirements. In Part 2, you will learn the latest Applied Building Science behind building with the "systems approach" to residential construction for

SELECT FROM THE MENU

▲ TEXAS RESIDENTIAL ENERGY CODE:

- INTRODUCTION AND BACKGROUND
- COMPLIANCE METHODS
- OVERVIEW AND SCOPE
- BASIC REQUIREMENTS: AIR LEAKAGE
- BASIC REQUIREMENTS: VAPOR RETARDERS
- BASIC REQUIREMENTS: INSULATION/WALLS
- BASIC REQUIREMENTS: WINDOWS
- BASIC REQUIREMENTS: HVAC/DUCT/ELECTRICAL/HOT WATER
- RESCHECK PRESCRIPTIVE COMPLIANCE
- RESCHECK SOFTWARE

APPLIED BUILDING SCIENCE:

- INTRODUCTION
- FOUNDATIONS
- FRAMING/ROOF
- MECHANICALS
- INSULATION/DRYWALL/PLUMBING/ELECTRICAL
- ADDITIONAL TIPS
- WHAT TO DO IF YOU HAVE MOLD
- ▼ CONCLUSION



> SALIR

INICIO

ACERCA DE SECO

RECURSOS

CONTÁCTENOS

SOPORTE TÉCNICO

AGRADECIMIENTOS

OFICINA DE CONSERVACIÓN DE ENERGÍA

SERIE DE ENTRENAMIENTO DE VÍDEO

BIENVENIDOS

Los constructores de viviendas y los profesionales de la construcción hacen frente hoy en día a un ambiente con grandes cambios. Ustedes tienen la necesidad constante de poner al día su conocimiento de ese ambiente respecto a cambios en materiales, en los códigos de construcción, en la responsabilidad y en las expectativas de los clientes.

Este video, patrocinado por la Oficina de Conservación de Energía del Estado de Texas (SECO), localizada en la Oficina del Contralor (Interventor) de Cuentas Públicas, y financiado por el Departamento de Energía de los Estados Unidos, le proporcionará una abundante información sobre dos de los temas más importantes para los constructores de viviendas de hoy: El cumplimiento con el nuevo Código de Conservación de Energía de Texas, y el control de la penetración de agua y humedad, así como el control del desarrollo del moho.

SELECCIONE DEL MENU

CODIGO RESIDENCIAL DE ENERGÍA DEL ESTADO DE TEXAS:

INTRODUCCIÓN Y ANTECEDENTES

MÉTODOS DE CUMPLIMIENTO

GENERALIDADES Y ALCANCE

REQUISITOS BÁSICOS: FUGAS DE AIRE

REQUISITOS BÁSICOS: BARRERAS DE VAPOR

REQUISITOS BÁSICOS: AISLAMIENTO

REQUISITOS BÁSICOS: VENTANAS

REQUISITOS BÁSICOS: DUCTOS Y ELECTRICIDAD

CUMPLIMIENTO PRESCRIPTIVO MEDIANTE RESCHECK

CIENCIA APLICADA DE LA CONSTRUCCIÓN:

MENOS PROBLEMAS, MEJORES VIVIENDAS, MAYORES GANANCIAS

How are we doing?

❖ Emissions ↓

❖ 824 annual NOx tons by 2007



❖ Building/material costs ↓

❖ Low-E windows 1/3 cost of pre-code

❖ Consumer energy bills ↓

❖ \$1 billion by 2008

Resources

- ❖ Texas Emissions Reduction Plan

www.tnrcc.state.tx.us/oprd/sips/terp.html

- ❖ Texas A&M/ESL – eCalc

ecalc.tamu.edu

- ❖ SECO Video & CD Code Training

www.seco.cpa.state.tx.us/sa_residentialvideo.htm